ATTACHMENT 2
WORKSHEET ASSUMPTIONS

1. **Baseline Volume of Water for Project**: 1,002.5 MG/year
    a. Assumption: The District allots 256.4 units per household per year. One unit equals 748 gallons x 256.4 = 191,787.2 gallons per year x 5,227 homes = 1,002,471,694.4 gallons per year for all homes, or 1,002.5 MG/year.

2. **Post Project Water Delivered**: 938.3 MG/year
    a. Assumptions: Per EPA WaterSense Website: http://www.epa.gov/WaterSense/pubs/fixleak.html, the average household's leaks can account for 10,000 gallons of water wasted every year. But, ten percent of homes have even greater leaks that waste 90 gallons or more per day (or 32,850 gallons per year). The District is planning on retrofitting AMI meters for 5,227 homes.
        i. 90% have average household leaks:
            1. 90% x 5,227 homes x 10,000 GPY = 47,043,000 GPY.
        ii. 10% have 90-gallon-per-day (32,850 GPY) household leaks:
            1. 10% x 5,227 homes x 32,850 GPY = 17,170,695 GPY.
        iii. 47,043,000 GPY + 17,170,695 GPY = 64,213,695 GPY or 64.2 MG/year.
        iv. 1002.5 MG/year – 64.2 MG/year = 938.3 MG/year.

    With the installation of AMI, our assumption is that leaks will now be addressed almost immediately due to the real-time notification at District level. Overall, please note that these are conservative assumptions as we have not even considered behavioral changes that will occur at the residential level due to new information being immediately available to these customers.

3. **Volume of Hot Water Saved (Electric Heaters)**: 1.5 MG/year.
    a. Assumption: Post-project water saved (64.2 MG/year) x indoor usage (40% per Water Master Plan) x 59.6% hot water (per AWWA study) x 10% electric heaters = 1.5 MG/year.

4. **Volume of Hot Water Saved (Natural Gas Heaters)**: 13.8 MG/year.
    a. Assumption: Post-project water saved (64.2 MG/year) x indoor usage (40% per Water Master Plan) x 59.6% hot water (per AWWA study) x 90% electric heaters = 13.8 MG/year.

5. **Useful Life in Years of Project**: 20 years
    a. Assumption: According to Aclara Manufacturer specifications, advanced metering equipment is expected to have a useful life of 20 years.

6. **Percentage of Imported Water**: 70%
    a. Assumptions: EVMWD utilizes a mix of imported water, groundwater, and local surface water. While EVMWD's service area includes Lake Elsinore, the lake does not serve as a water supply for its customers. Instead, high-quality water is purchased from the Metropolitan Water District of Southern California (Metropolitan) via Eastern (Auld Valley Pipeline) and Western (Temescal Valley Pipeline) Municipal Water Districts and is a mix of Colorado River and State Water Project (SWP) water. Imported water represents 70 percent of EVMWD's water. Groundwater from the Elsinore Basin provides about 25 percent of EVMWD's water, while surface water from Canyon Lake makes up the remaining estimated 5 percent.

7. **Energy Intensity of System associated with project water savings**: 2,602 kWh/MG
    a. Assumption: The KWh usage per MG is derived from kWh usage for entire system during FY 2014 divided by the entire system water produced (8,490MG). See Att2_WE14_EVMWD_WEGHG_Step 7_Backup_3of3 for further details.

Period	(1) KWh Usage (provided)	(2) Water Produced (AF) (provided)	(3) Water Produced (MG) (Col 2 x 325,851/1 million)	(4) KWh per MG (Col 1/Col 3)
FY 2012	17,260,832	23,249	7,576	2,278
FY 2013	18,539,411	25,126	8,187	2,264
FY 2014	22,091,539	26,055	8,490	2,602

8. **Total Output Emission Rate (default value)**: 0.278 kg CO2e/kWh
    a. Assumption: Using default value of 0.278 kg CO2e/kWh.

9. **EI associated with Supply and Conveyance**: 9,760.6 kWh/MG
    a. Assumption: EVMWD receives 51% of its water from Colorado River and 49% from the State Water Project. Using DWR Table 6 Energy Intensities for Imported Water, the following numbers were derived:

Pumping Plant	DWR Table 6 kWh/MG	Percent EVMWD Water	EI for Imported Water
Colorado River	6,066	X .51	3,093.66
Pearblossom	13,606	X .49	6,666.94
Total			9,760.60

10. **Additional Annual Energy Savings**: 12,130 kWh/year
    a. Assumption: Using the following U.S. Environmental Protection Agency parameters to convert gasoline savings to kWh (where 1 therm equals 29.3

KWh): 1) Average mileage of car and light truck is 21.5 miles/gallon. 2) Average heat content per gallon of gasoline is 1.25 therms/gallon.

b. One meter reader for the 5,227 meters spends a total of five days per month reading. Data used to compute kWh is noted below:

Mr. Gilbert Campas – Meter Reader
Vehicle 191 = 12 mpg
Total fuel Jan 1st to Oct 31st = 1,135 gallons
Average fuel use per month = 113.5 gal
Number of miles driven Jan 1st to Oct 31st = 13,240
Average miles per month = 1,324
Average miles per day = 66.2 miles (1324/20 days per month = 66.2 miles per day)
Miles per month reading meters: 331 miles (66.2 miles per day x 5 days = 331 miles reading meters).

Mr. Campas drives approximately 331 miles per month to read 5,227 meters: 331 miles/12 mpg = 27.58 gallons x 1.25 therms = 34.48 therms per month x 12 mo = 413.7 therms per year x 29.3 kWh = 12,130 kWh/year.